

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A DC mitigation circuit, comprising:

a control circuit for evaluating an amount of DC ~~or harmonic~~ current resulting from the DC in a transmission line; and

switches for providing a current into a winding of a transformer, said switches being controlled by said control circuit,

wherein said current provided to said winding generates a magnetic flux that offsets a flux created by said DC ~~or harmonic~~ current resulting from the DC in said transmission line.

2. (Currently Amended) The DC mitigation circuit of claim 1, further comprising ~~wherein said switches are metal oxide semiconductor field effect transistors (MOSFETs)~~ the control circuit evaluating an amount of harmonic and non-harmonic AC current resulting from the DC in the transmission line.

3. (Original) The DC mitigation circuit of claim 1, wherein said DC mitigation circuit is connected to an output filter for filtering an output of said switches.

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4. (Original) The DC mitigation circuit of claim 1, wherein said control circuit is connected to a primary winding of said transformer.
5. (Original) The DC mitigation circuit of claim 1, wherein said control circuit is connected to a secondary winding of said transformer.
6. (Original) The DC mitigation circuit of claim 1, wherein said control circuit is connected to a core of said transformer.
7. (Original) The DC mitigation circuit of claim 1, wherein said switches are connected to a tertiary winding of said transformer.
8. (Original) The DC mitigation circuit of claim 1, further comprising a capacitor for powering said switches.
9. (Original) The DC mitigation circuit of claim 8, further comprising diodes connected across said switches so as to charge said capacitor during a frequency cycle.
10. (Original) The DC mitigation circuit of claim 9, wherein said switches are MOSFETs and said diodes are connected across a source and drain of said MOSFET switches so as to carry current in an opposite direction from said MOSFET switches.

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11. (Original) The DC mitigation circuit of claim 10, wherein said capacitor discharges during said frequency cycle so as to power said MOSFET switches.

12. (Currently Amended) The DC mitigation circuit of claim 1, further comprising wherein said switches are integrated gate bipolar transistors (IGBTs) the control circuit evaluating an amount of harmonic and non-harmonic AC current resulting from the DC in the transmission line and wherein said current provided to said winding generates a magnetic flux that offsets a flux created by said DC and harmonic and non-harmonic AC current resulting from the DC in said transmission line.

13. (Currently Amended) A method of performing DC mitigation, comprising the steps of:

evaluating an amount of DC ~~or~~ and harmonic current resulting from the DC in a transmission line; ~~and~~

providing a current into a winding of a transformer based on said evaluated amount of DC ~~or~~ and harmonic currents resulting from the DC; ~~and, said current~~

generating a magnetic flux that offsets a flux created by said DC ~~or~~ and harmonic currents resulting from the DC in said transmission line.

14. (Original) The method of claim 13, wherein said current supplied to said transformer winding is provided by an internal power supply.

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15. (Original) The method of claim 14, wherein switches are used to control said current that is outputted from said power supply to said transformer winding.

16. (Original) The method of claim 15, further comprising the step of filtering said current output from said switches.

17. (Currently Amended) The method of claim 13, ~~wherein said switches are metal-oxide-semiconductor field-effect transistors (MOSFETs) further comprising evaluating an amount of non-harmonic AC current resulting from the DC in a transmission line.~~

18. (Original) The method of claim 13, wherein said switches are integrated gate bipolar transistors (IGBTs).

19. (Original) A DC mitigation circuit, comprising:
means for evaluating an amount of DC or harmonic current resulting from the DC in a transmission line; and
means for providing a current into a winding of a transformer, said means for providing a current into said winding being controlled by said means for evaluating, wherein said current provided to said winding generates a magnetic flux that offsets a flux created by said DC or harmonic current resulting from the DC in said transmission line.

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20. (New) The DC mitigation circuit of claim 1, wherein the control circuit further evaluates an amount of harmonic current resulting from the DC in the transmission line and wherein said current provided to said winding generates a magnetic flux that offsets a flux created by said harmonic-current resulting from the DC in said transmission line.

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